The Perception of Spatial Layout as a Biologically Functional Adaptation

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Abstract

From a biological perspective, visual and perceptual systems evolved to promote adaptive actions with minimal energetic cost. As a result, humans are only sensitive to the visual information which is necessary for successful environment interaction. Additionally, individuals perceive this information in an adaptive way which supports successful behaviors. Information specifying the spatial layout not only allows for the execution of visually controlled actions, but also allows perceivers to determine which actions they can perform. In order to make decisions about possibilities for action, visual information specifying the environment needs to be scaled to action capabilities of actors' bodies. I will provide evidence that this rescaling provides the metric to which the optical information specifying perceived sizes and distances are scaled. In other words, individuals perceive sizes and distances as a proportion of the action-relevant aspect of their body. Hence, individuals do not perceive the world, but the relationship between their body's action capabilities and the environment.

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